

Effect of EMC kaons on phi? Corrected kaons

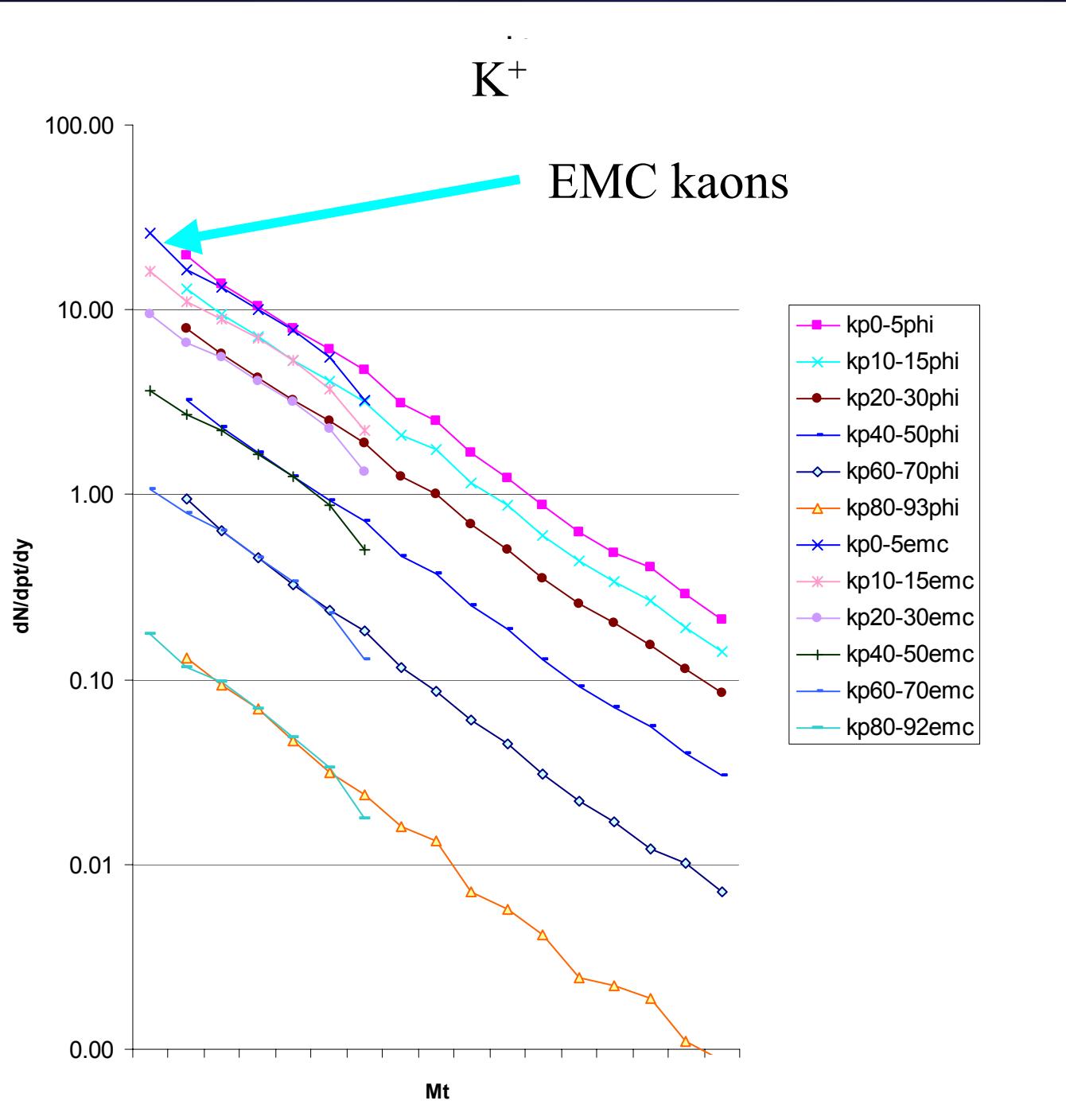
Ppg016

R. Seto

Apr 30

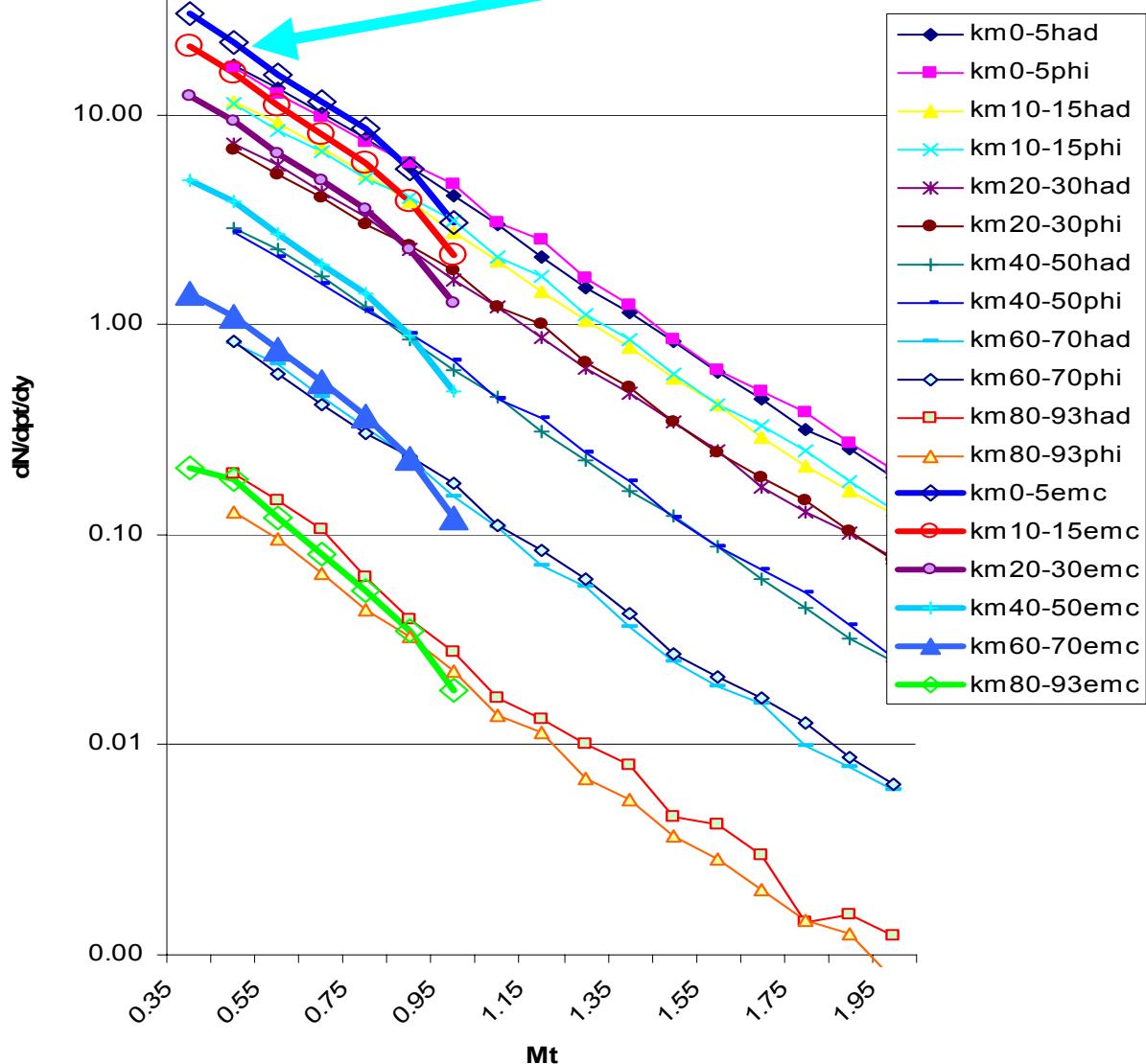
Update

- Munir corrects a bug (extra m^2 cut) which affects single kaons and the phi – he has done this
- Looks like EMC K^+ is starting to match TOF. Still problem at highest pt and maybe lowest pt?
- K^- Does not match!
- See effect on Phi

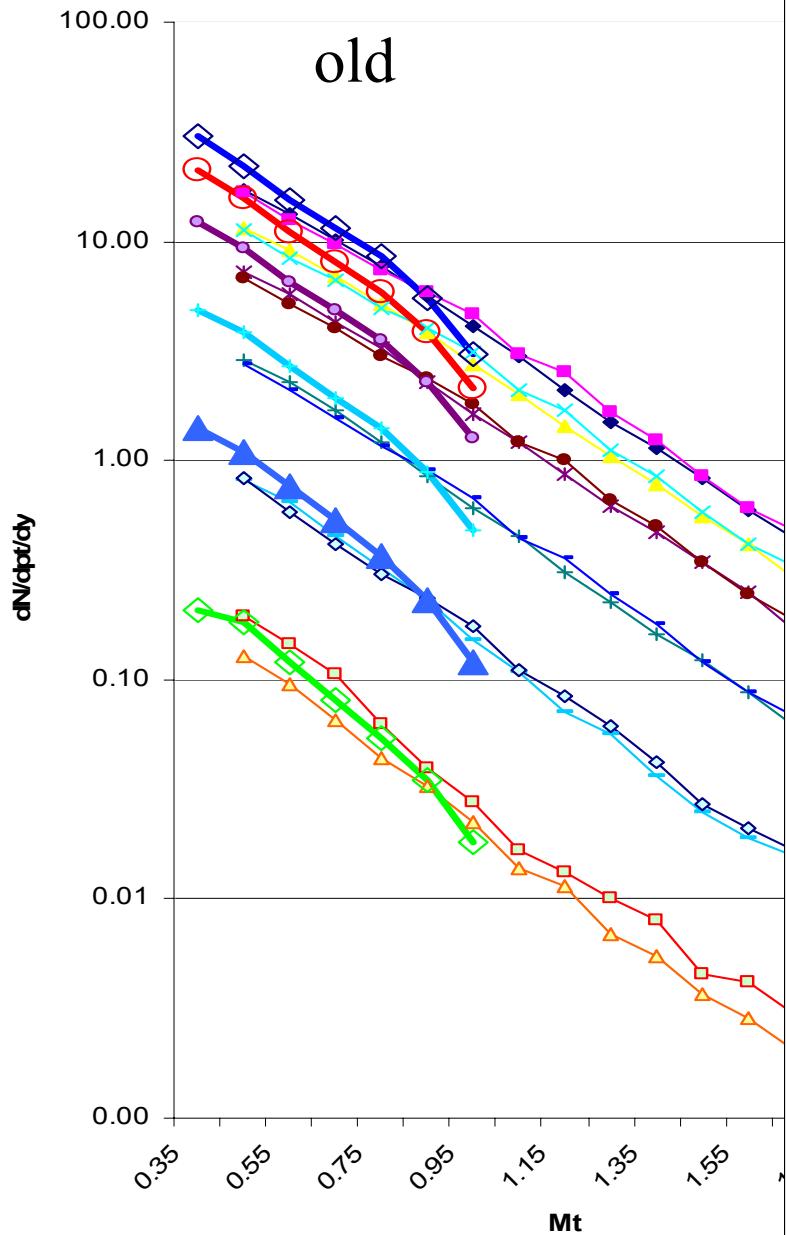


k-

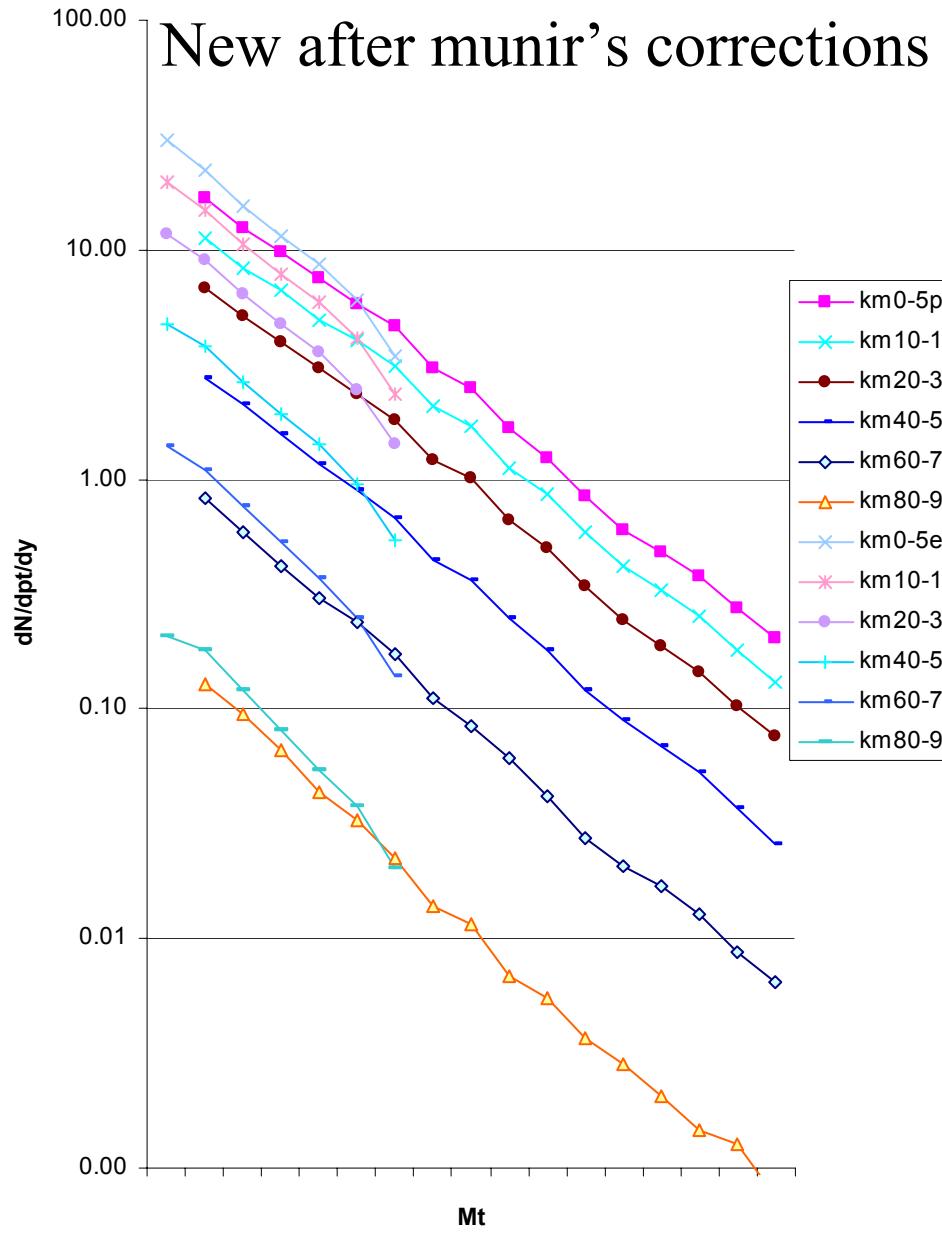
Emc Kaons don't match TOF



k-

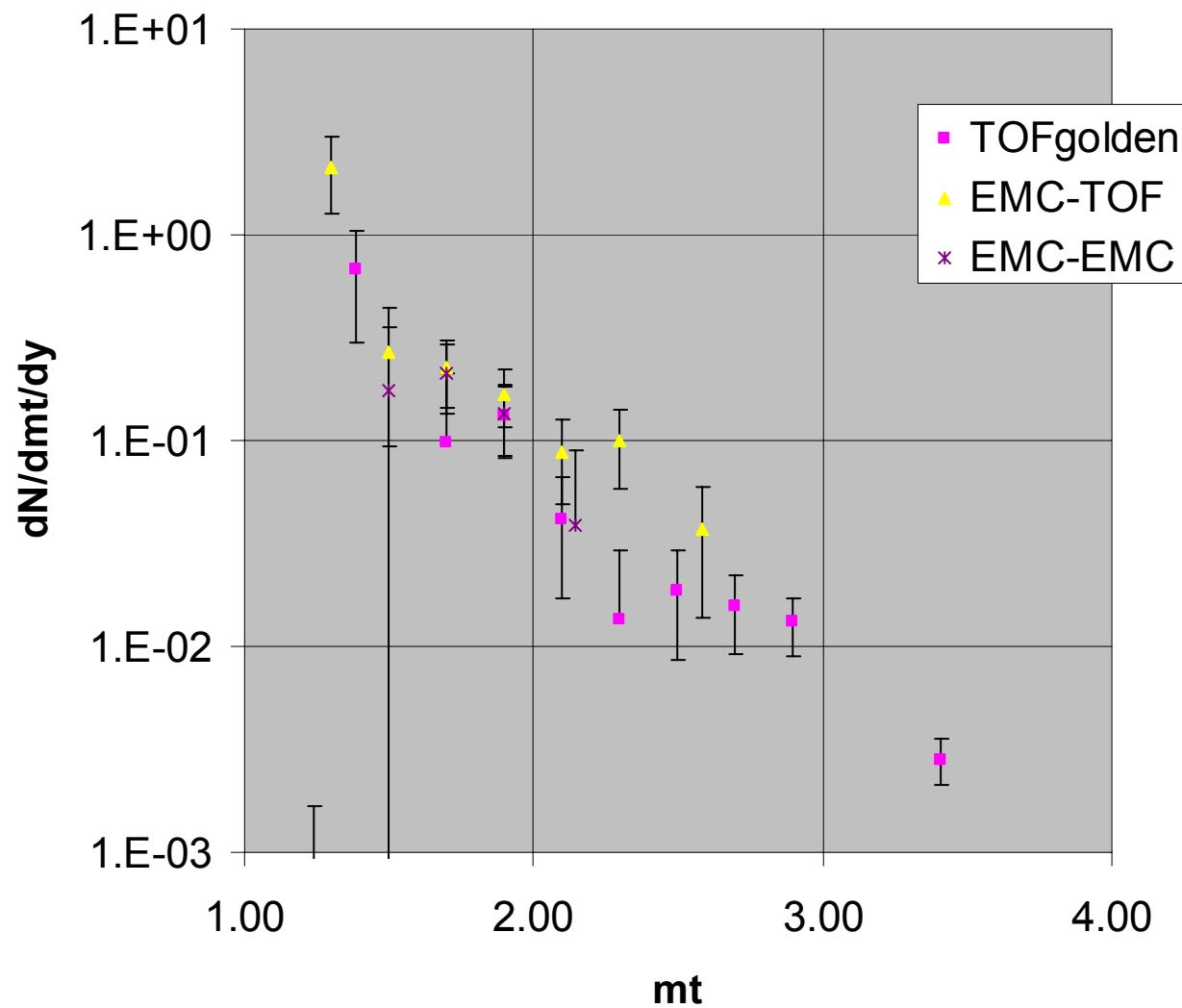


k-

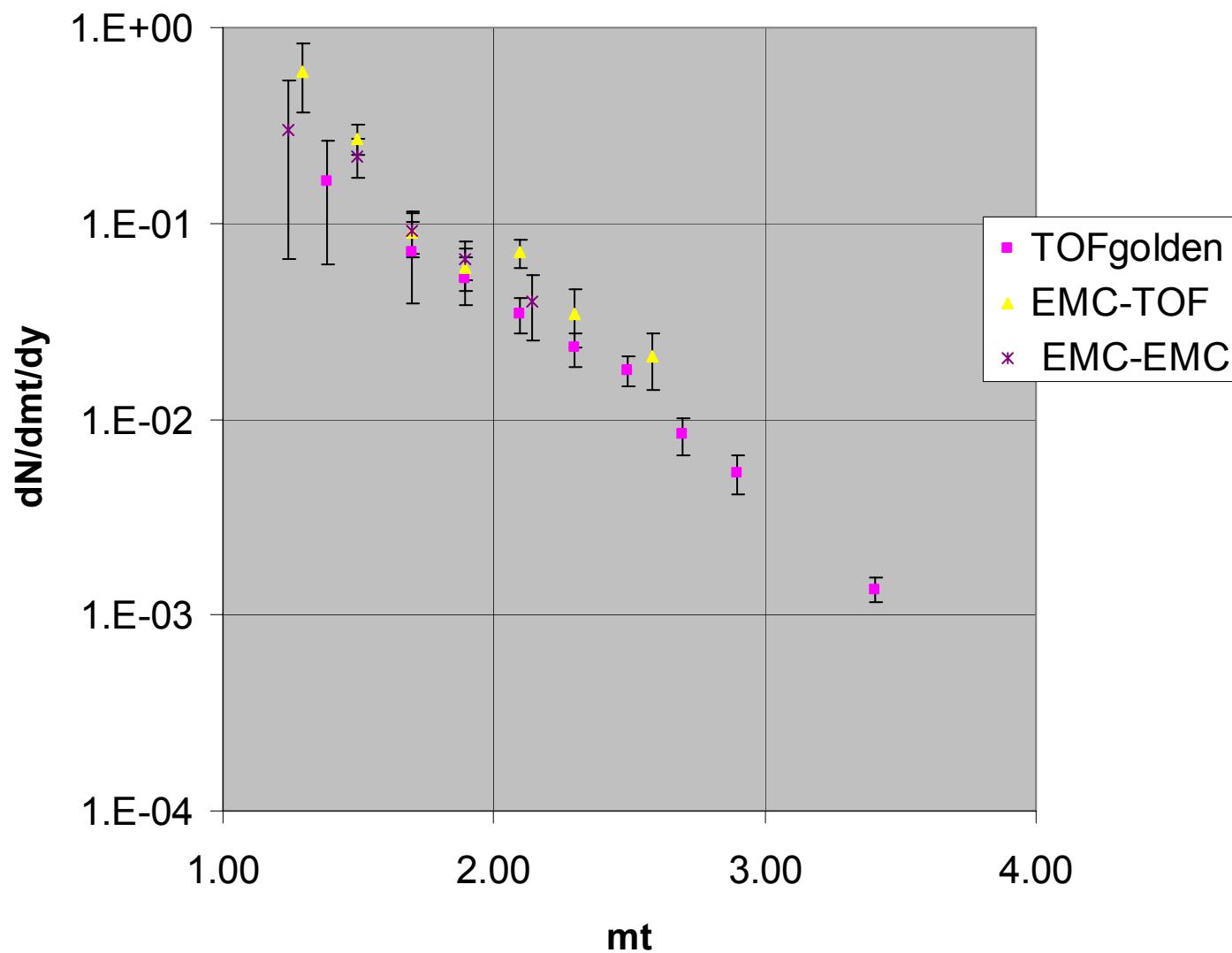


- Rest of the plots use old k-'s
- I don't think it makes much difference

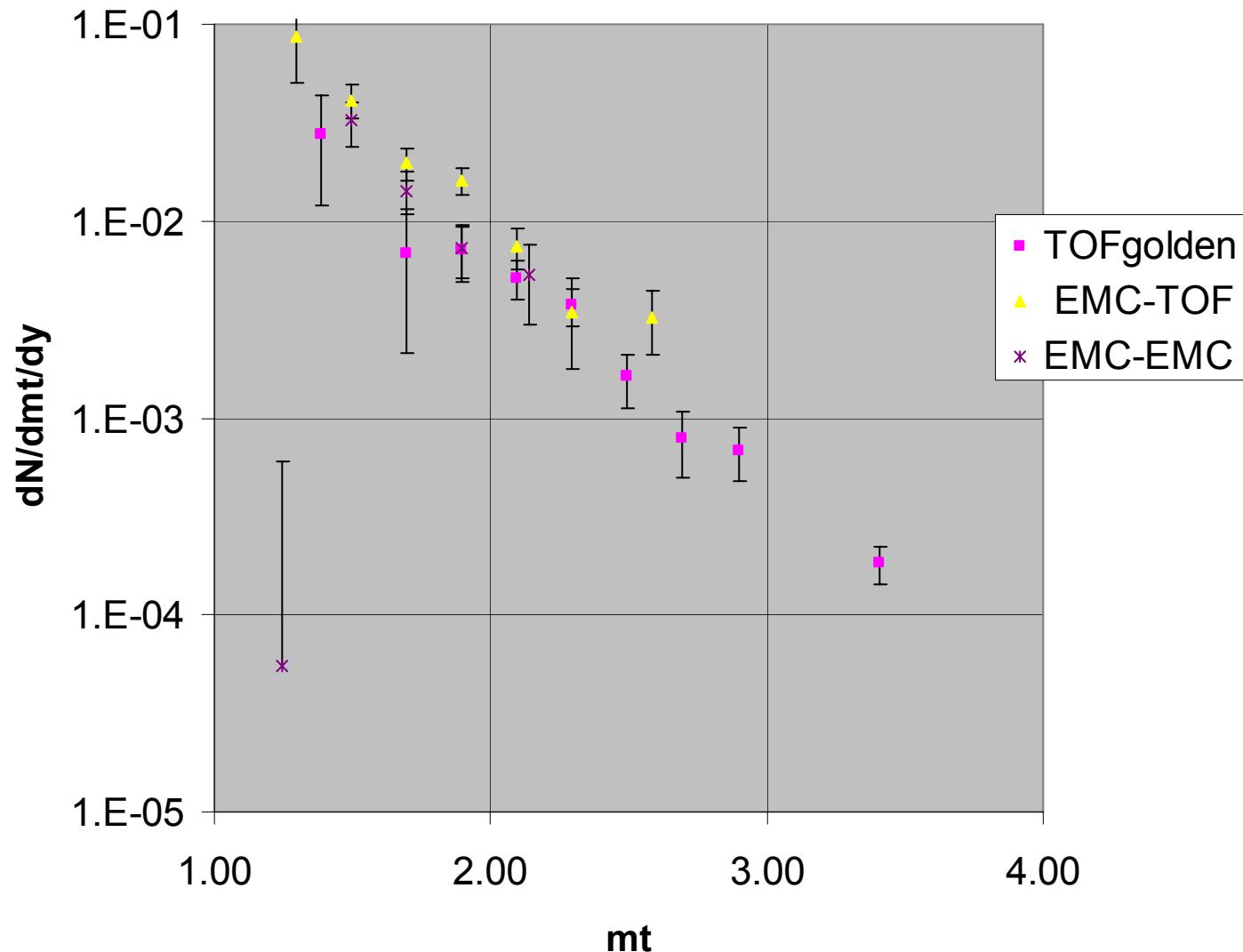
phi 0-10%



phi 10-40%



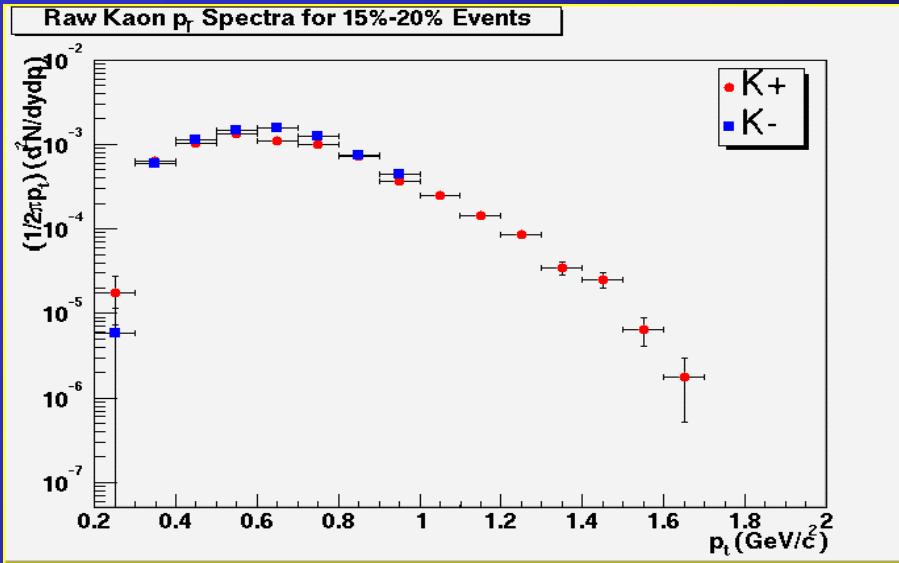
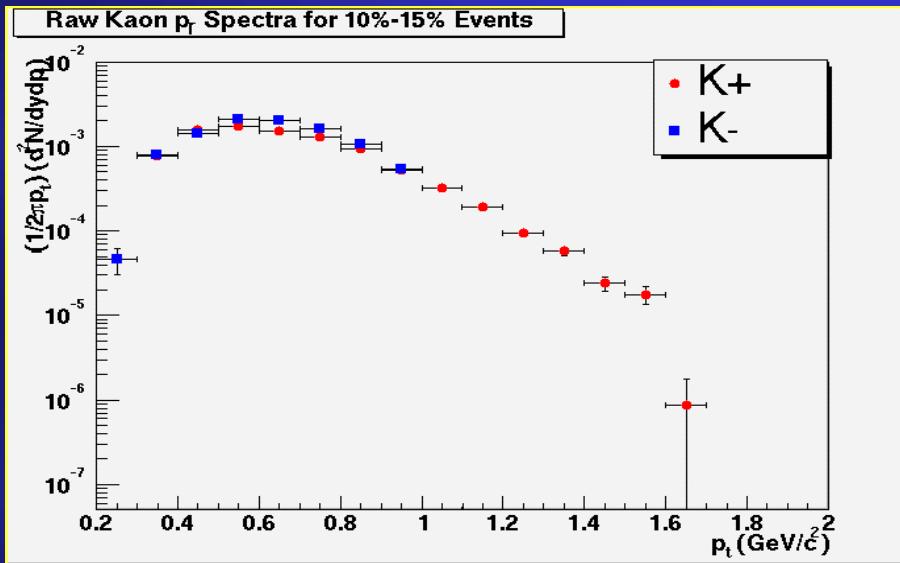
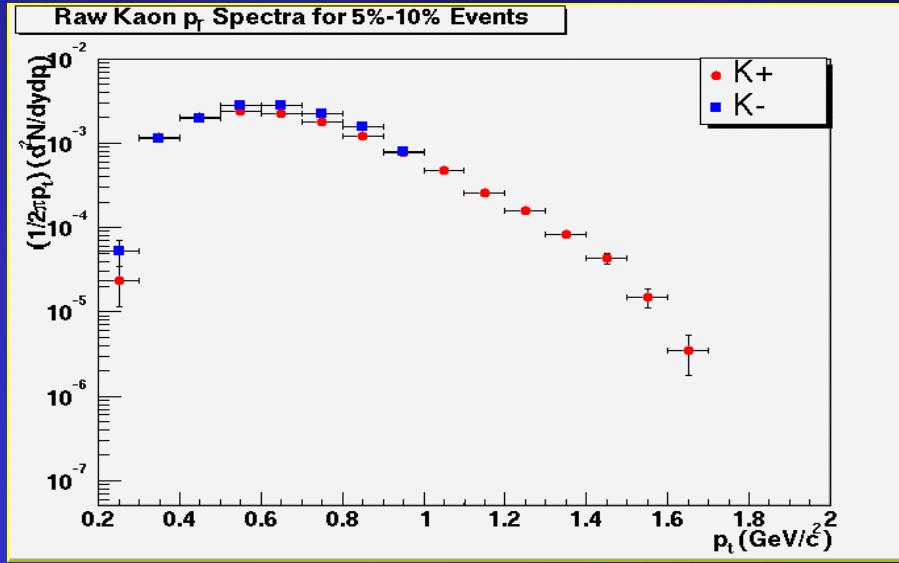
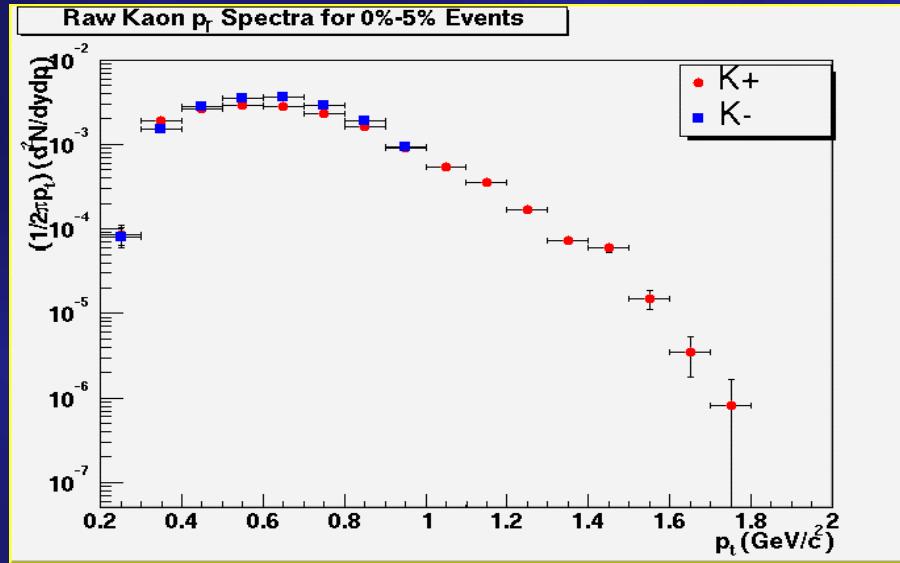
phi 40-92%



Problem/Procedure

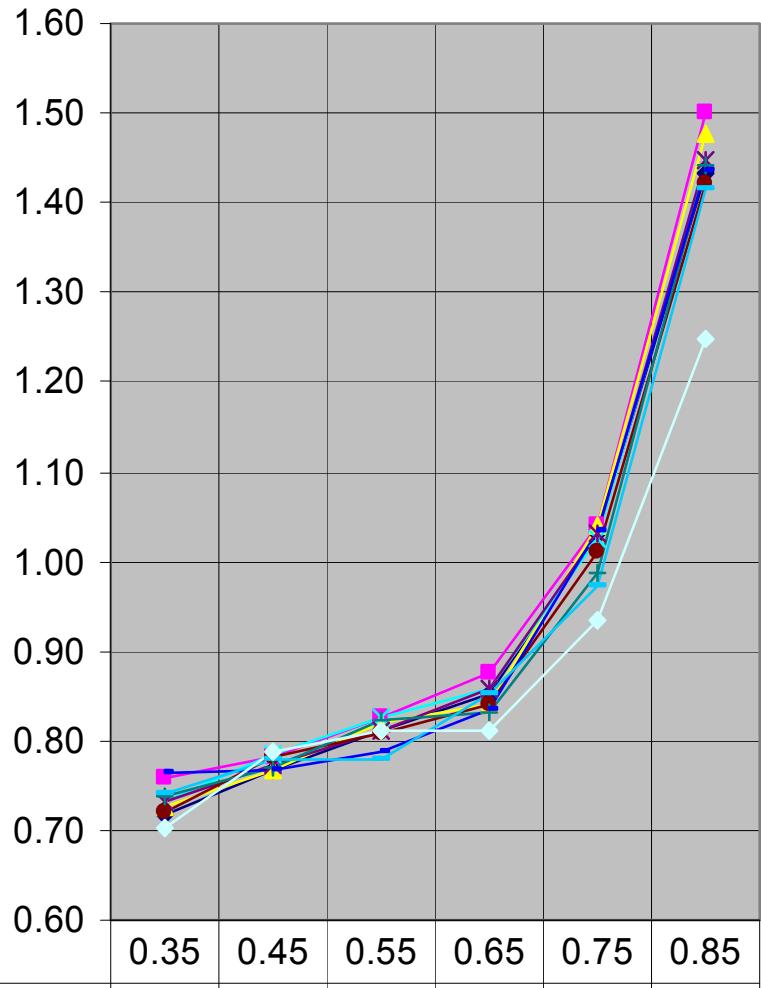
- Phi from EMC and TOF not consistent
- Kaons from EMC-TOF and TOFTOF not consistent
 - K^- measured in EMC
- Can correcting kaons in EMC fix the phi?
- Procedure to test
 - Reweight K^- measured in EMC to give same spectrum as TOF
 - Use weights in reconstructing phi
- So
 - Take kaons from $1.014 < M_{\phi} < 1.024$ – plot $m_{t_{\phi}}$ vs centrality
 - Weight kaons – plot $m_{t_{\phi}}$ vs centrality
- Find ratio – see how it affects things

Raw Yields for TOF-EMC kaons for $1.014 < M\phi < 1.024$



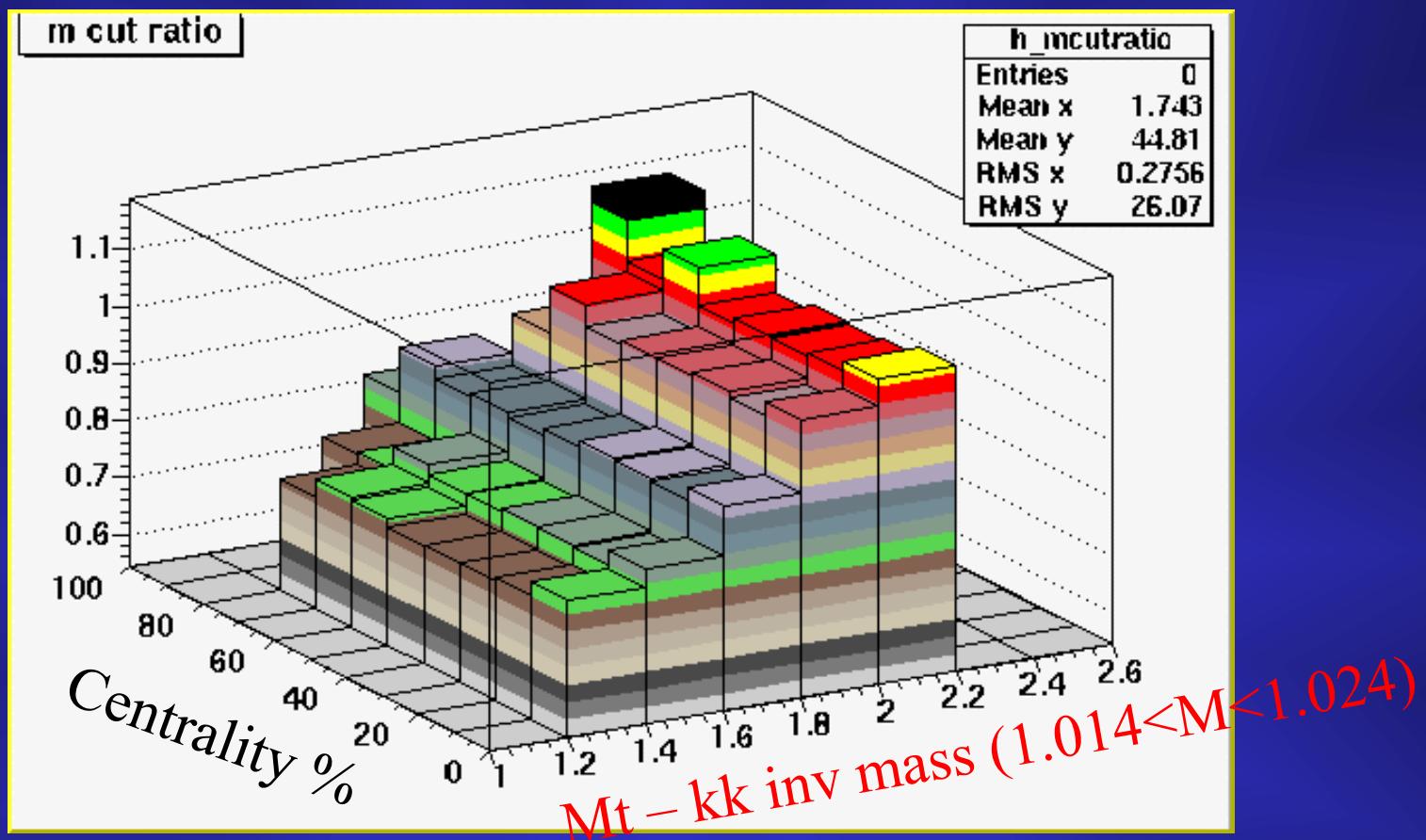
weights vs pt

weight



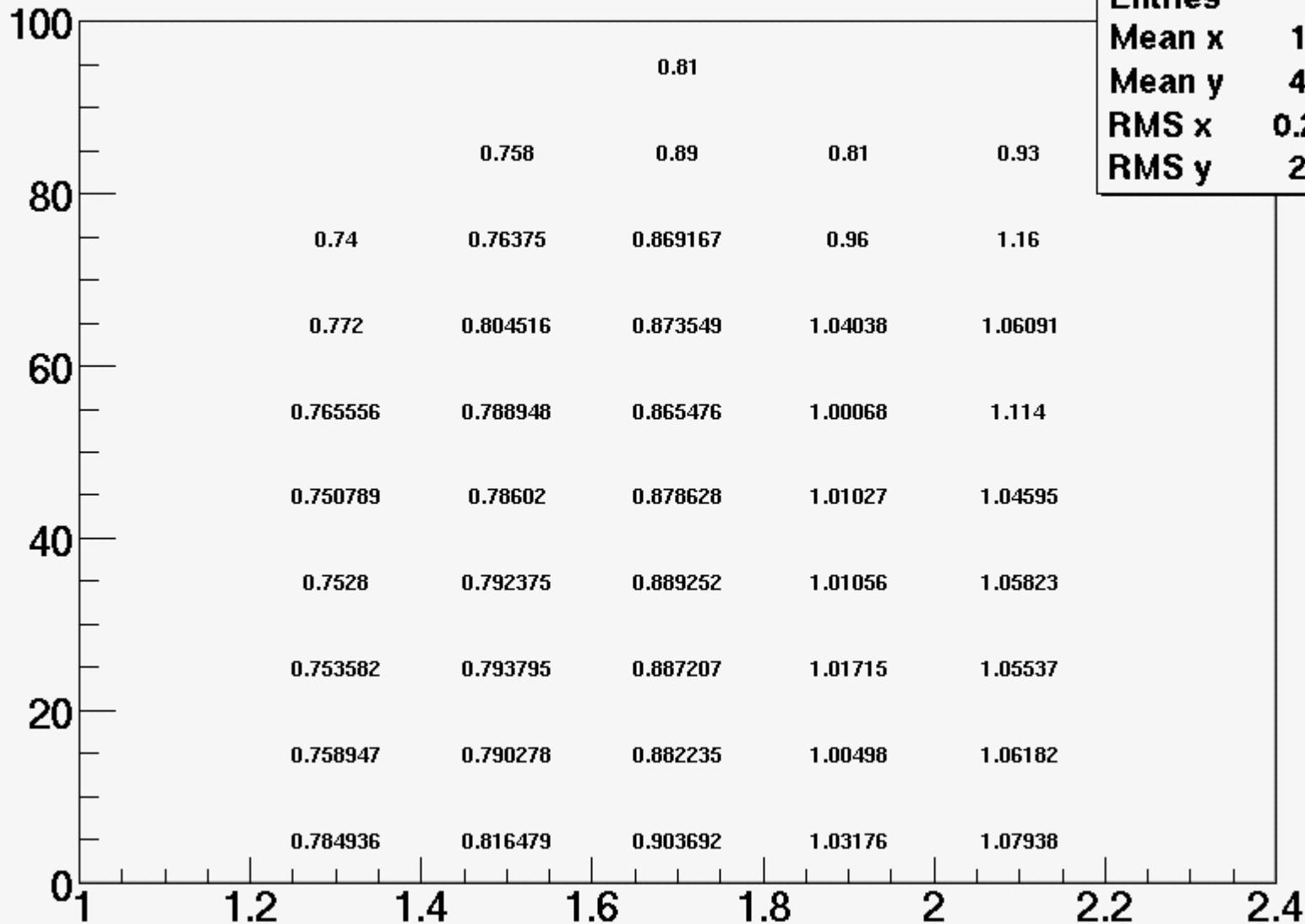
	0.35	0.45	0.55	0.65	0.75	0.85
15-20%	0.72	0.77	0.81	0.85	1.03	1.43
5-10%	0.76	0.78	0.83	0.88	1.04	1.50
10-15%	0.73	0.77	0.82	0.84	1.04	1.48
20-30%	0.73	0.78	0.82	0.86	1.03	1.45
30-40%	0.73	0.77	0.81	0.86	1.03	1.45
40-50%	0.72	0.78	0.81	0.84	1.01	1.42
50-60%	0.74	0.77	0.82	0.83	0.99	1.44
60-70%	0.76	0.77	0.79	0.84	1.03	1.44
70-80%	0.74	0.78	0.78	0.85	0.97	1.41
80-93%	0.70	0.79	0.81	0.81	0.93	1.25

Ratio



m cut ratio

h_mcutratio	
Entries	0
Mean x	1.743
Mean y	44.81
RMS x	0.2756
RMS y	26.07



Effect on phi

- Weight the phi mt distribution with the ratios from above
- Results:

Mt	0-10%		10-40%		40-92%	
		w/rewt		w/rewt		w/rewt
1.3	2.1E+00	1.7E+00	6.0E-01	4.5E-01	8.7E-02	6.6E-02
1.5	2.7E-01	2.2E-01	2.7E-01	2.2E-01	4.1E-02	3.2E-02
1.7	2.3E-01	2.1E-01	9.0E-02	8.0E-02	2.0E-02	1.7E-02
1.9	1.7E-01	1.8E-01	6.0E-02	6.0E-02	1.6E-02	1.5E-02
2.1	8.7E-02	9.4E-02	7.1E-02	7.5E-02	7.4E-03	7.8E-03
	1.0E-01	1.0E-01	3.5E-02	3.5E-02	3.5E-03	3.5E-03
	3.7E-02	3.7E-02	2.1E-02	2.1E-02	3.2E-03	3.2E-03

Redoing fits

- Doesn't make much difference ($\sim 10\%$) in final fit e.g. for 40-92%

before

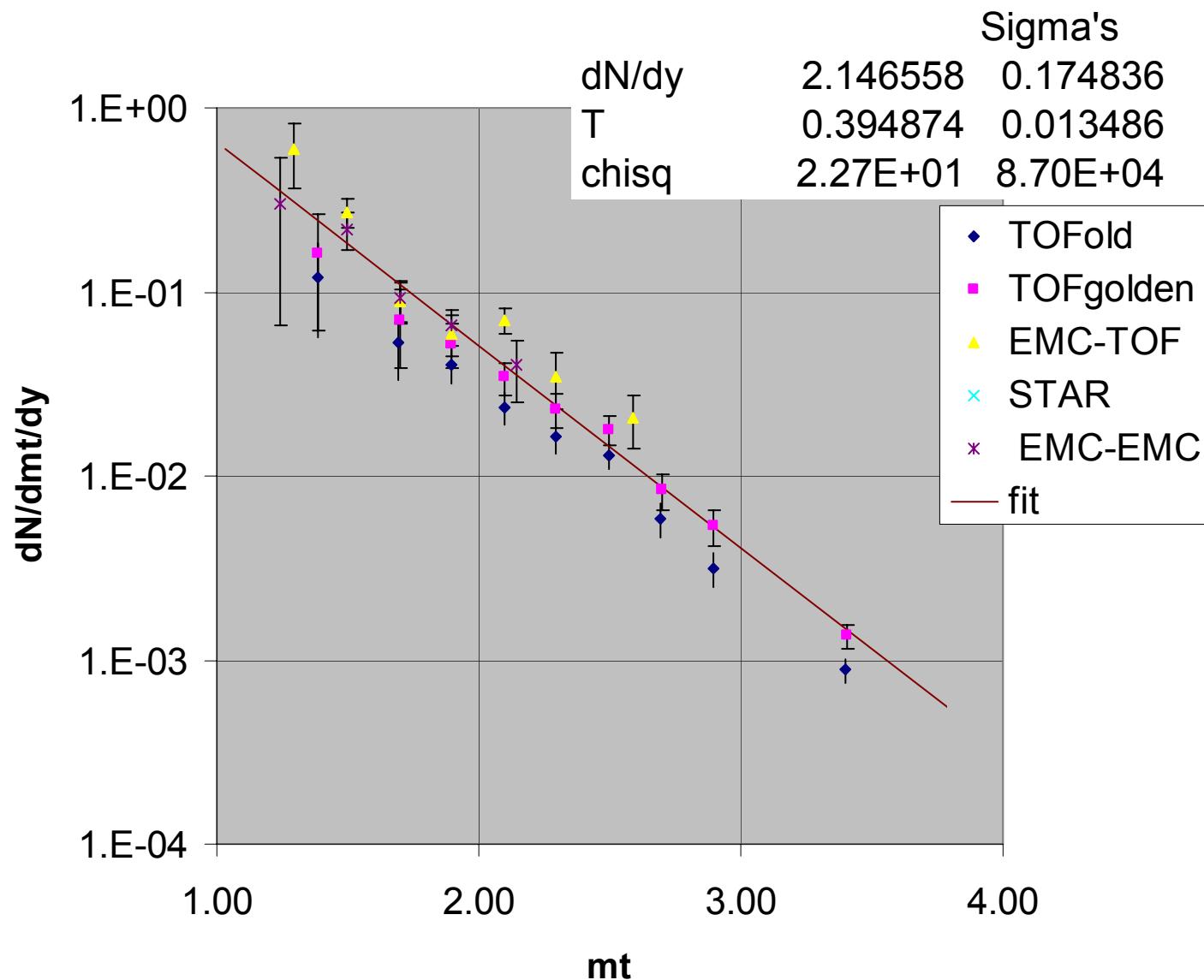
	Sigma's	
dN/dy	2.146558	0.174836
T	0.394874	0.013486
chisq	2.27E+01	8.70E+04

After reweight

	Sigma's	
dN/dy	2.065976	0.174836
T	0.399503	0.013486
chisq	2.15E+01	8.71E+04

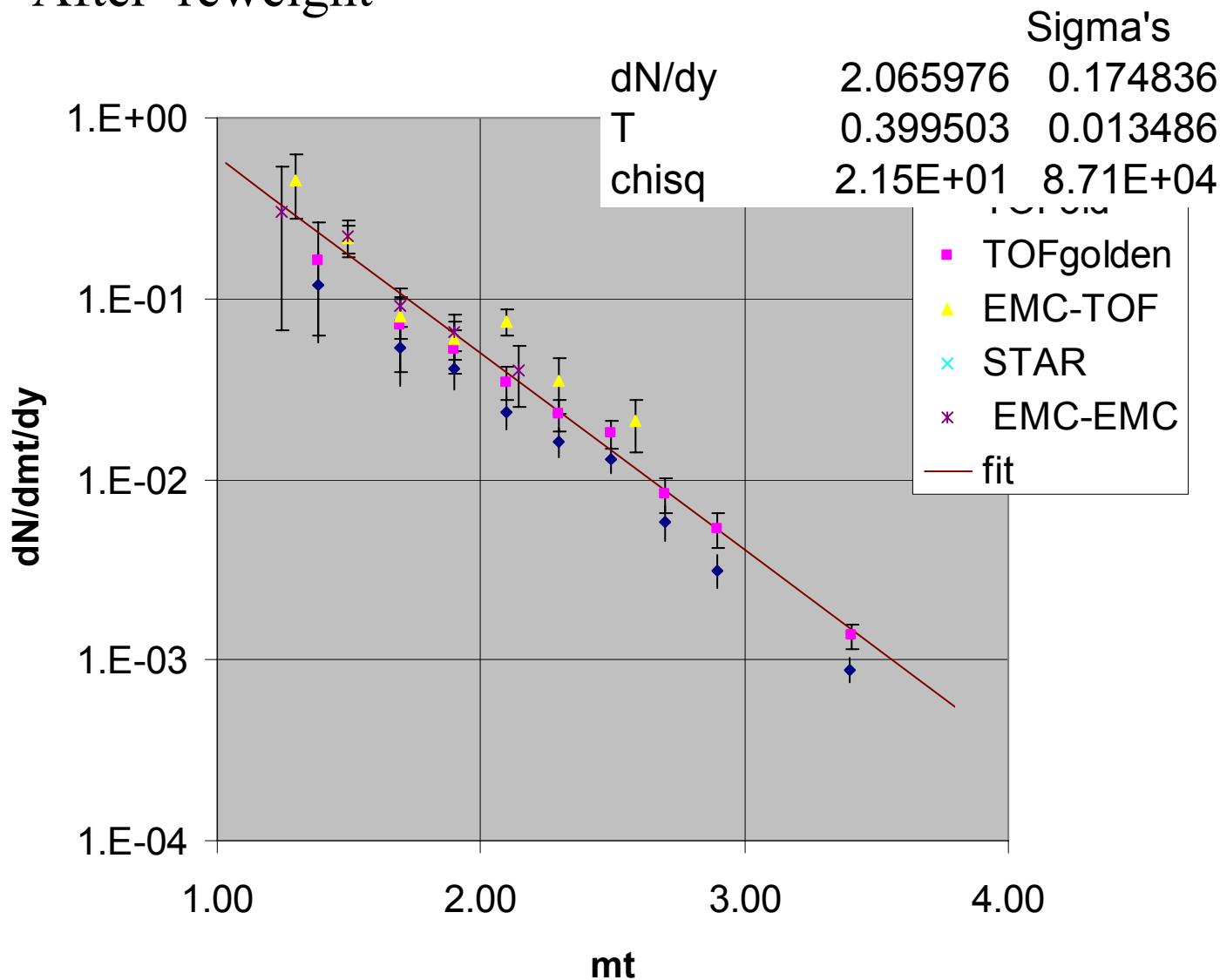
Before reweight

phi 10-40%



After reweight

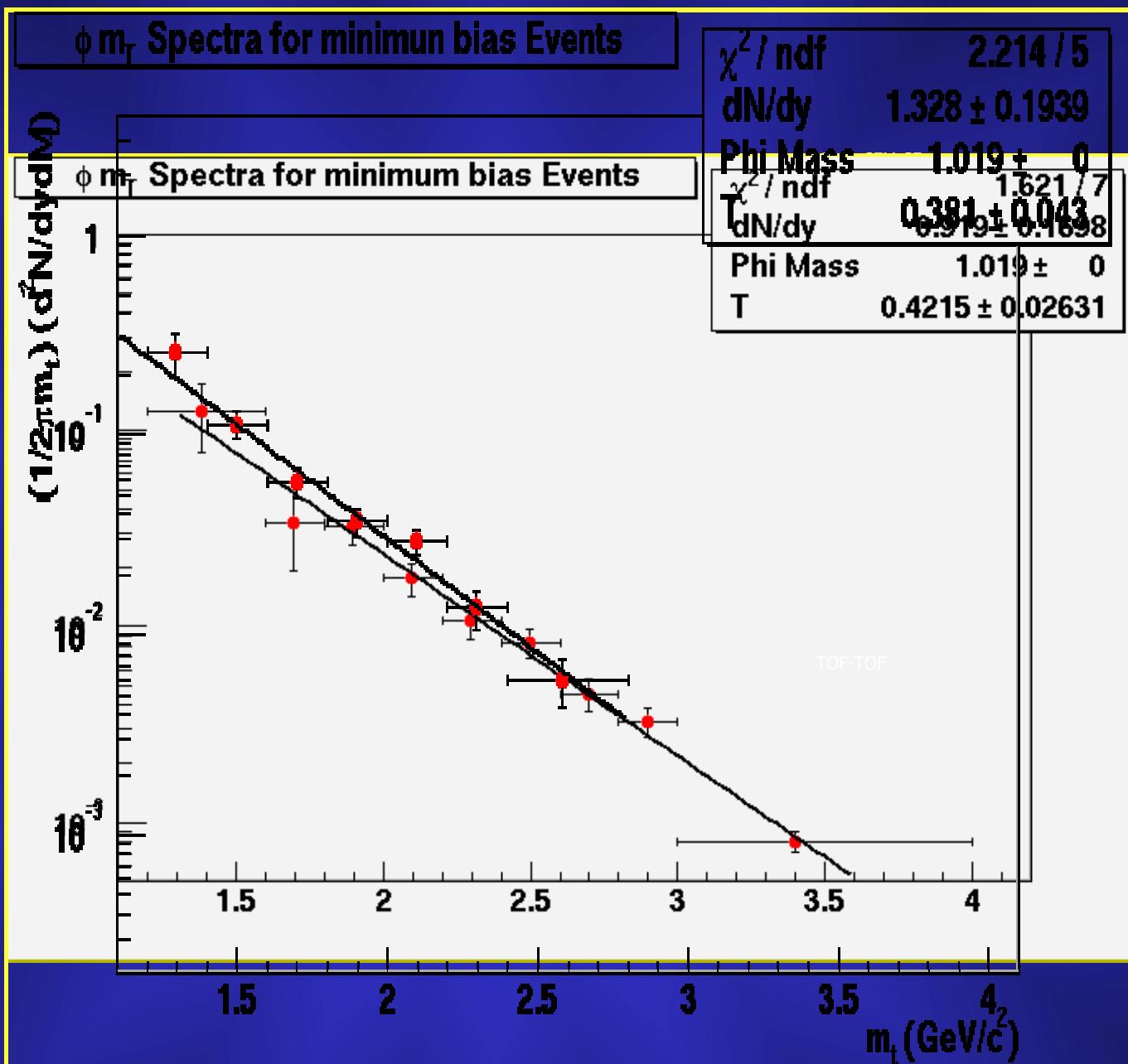
phi 10-40%



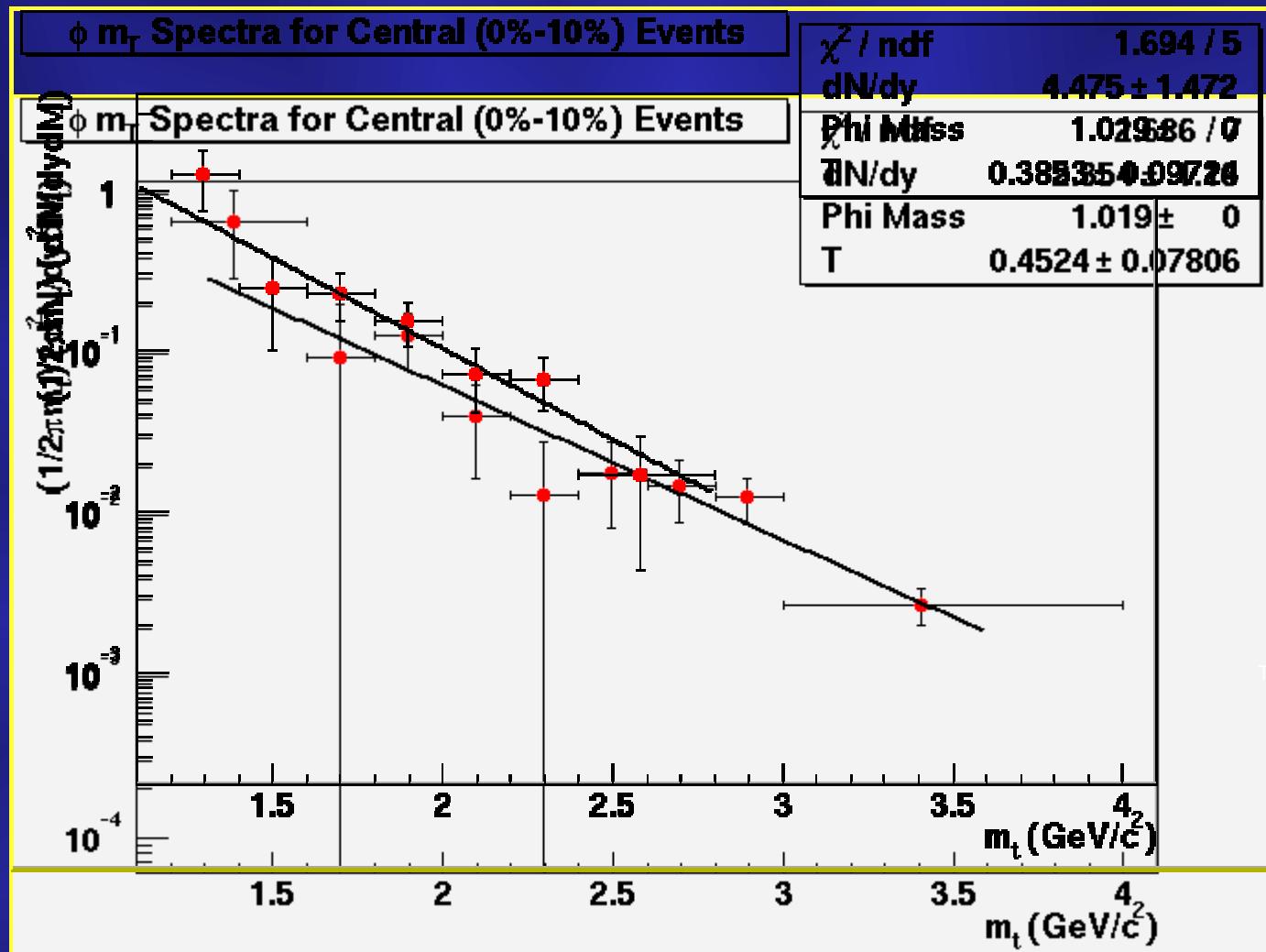
Summary

- Looks like change actually REDUCES the EMC-TOF phi to the TOF-TOF phi
 - This assumes that the background kk pairs and the phi's are affected the same
- Reweighting phi's doesn't seem go change dndy much (<10%)
- next step – figure out what is wrong with the EMC kaons and phi's

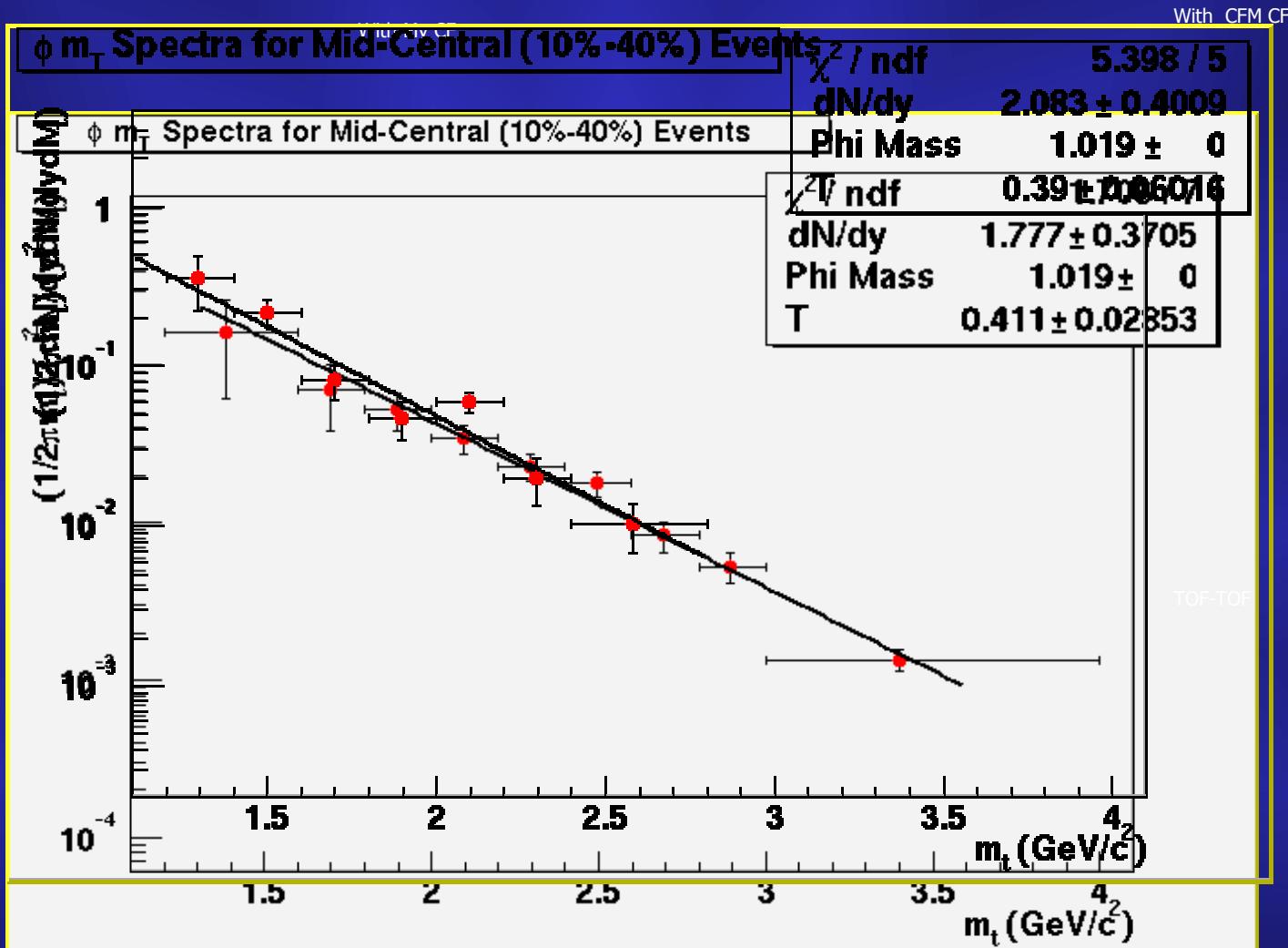
Comparison of TOF-EMC yields : minbias



Comparison of TOF-EMC yields : 0%-10%



Comparison of TOF-EMC yields : 10%-40%



Comparison of TOF-EMC yields : 40%-92%

